Case Report

Erector spinae plane block as a rescue therapy for uncontrolled pain after laparotomic surgery: A report of two cases

ABSTRACT

The erector spinae plane block (ESP) is a novel interfascial block described in 2016 by Forero. Although it has been used to provide analgesia for planned abdominal and thoracic surgery, it has never been used as a rescue technique for abdominal surgery. Pain control can be a challenge for anaesthesiologists in laparotomic surgery when epidural analgesia is contraindicated. We report two cases in which the ESP block has been successfully used as a rescue technique to provide pain relief after laparotomic surgery.

Key words: Erector spinae plane block; laparotomic surgery; pain

Introduction

The erector spinae plane (ESP) block is an interfascial block proposed by Forero[1] to provide analgesia to patients suffering from chronic thoracic pain. It consists of an injection of local anaesthetic inside the ESP. ESP block has been used both for acute[2] and chronic[1] pain therapy, for thoracic[1,3] and abdominal surgery[4] and its indications are constantly increasing. The proposed sites of action of the block are both the spinal rami in the ESP[1] and the paravertebral space.[5] Diffusion of the local anaesthetic into the paravertebral space could be probably responsible for the profound visceral anaesthesia observed after ESP block. However, a recent study[6] has questioned this mechanism and proposed an alternative mechanism for the involvement of the lateral cutaneous branches of the intercostal nerves after they pierce the intercostal muscles.

We report two cases of ESP block used as a rescue therapy after major abdominal surgery in which opioids did not offer adequate analgesia. Written informed consent was taken from both the patients.

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Case Reports

Case 1

A 66-year-old male weighting 72 kg, with a height of 170 cm, was admitted to the Post Anesthesia Care Unit (PACU) after a laparotomic duodeno-cefalo-pancreasectomy. His comorbidities included hypertension, chronic obstructive lung disease and a history of deep vein thrombosis. His medications included fondaparinux (discontinued 24 h before surgery), atenolol and pantoprazole.

The anaesthesiologist planned an endovenous analgesia strategy. The positioning of an epidural catheter was considered an unacceptable risk due to the short discontinuation time of the fondaparinux.

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The surgery was uneventful and the patient was extubated in the operating room. The analgesia was administered as follows: acetaminophen 1 g 8 hourly, ketoprofen 100 mg 6 hourly and tramadol 100 mg 6 hourly.

However, the patient complained of a pain described as 'sharp' during the first postoperative day. The pain intensity was evaluated with the numeric rating scale (NRS) and ranged from 8 to 10. The analgesic rescue therapy consisted of morphine boluses (total 30 mg); however the patient reported more nausea than pain relief after the administration of each bolus.

In order to provide analgesia we decided to execute a bilateral ESP block at T9 level. An informed consent for anaesthesia was obtained.

The ESP block was performed as described by Forero: the patient was placed in the semi-recumbent position and a high-frequency linear ultrasound transducer was placed transversally on the spinous process of the T9 vertebra. Afterwards, with a lateral movement of the probe, the transverse process was visualized and centred. The erector spinae muscle was identified by performing a 90° rotation of the probe on the deep plane. The ESP block was executed by injecting 20 ml of 2% ropivacaine. In the following 30 min the patient reported a satisfying analgesia (NRS 3). The patient requested further analgesics after 18 h of the block execution.

Case 2

A 70-year-old male weighting 85 kg, with a height of 183 cm, was admitted to the Post Anesthesia Care Unit (PACU) after an explorative midline laparotomy with the findings of a diffuse tumour infiltration. His comorbidities included hypertension, insulin-dependent diabetes and severe chronic back pain. His medications included furosemide, valsartan, insulin and oxycodone. Since the clinical cause of the severe back pain was not clear, the anaesthesiologist decided not to place an epidural catheter and instead planned an elastomeric pump with 600 mg of tramadol and 400 mg of ketoprofen.

The surgery was uneventful. Pain relief could not be achieved in the first postoperative day (NRS 6–10) despite multiple boluses of morphine (27 mg total). For this reason, an analgesia with an ESP block was proposed and accepted by the patient. The ESP block technique was performed at T9 level, as described above, and it was executed by a bilateral injection of 20 ml of 2% ropivacaine. Although adequate analgesia was reported by the patient within 40 min (NRS 0), the pain relief lasted just 6 h (NRS 3); after 12 h the patient requested further opioids.

Discussion

Pain caused by open abdominal surgery is multifactorial; we can describe a somatic component (skin and muscle incision, retraction of muscles) and a visceral component (handling and incision of viscera). Epidural anaesthesia is the gold standard to achieve pain control and to avoid side effects of opioids. However, sometimes the positioning of an epidural catheter can be contraindicated or too risky.

ESP block is an interfascial block technique with multiple interesting aspects. It is easy to perform and relatively safe due to the fact that it targets the transverse process. It is able to provide both the somatic and visceral analgesia, by possibly spreading the anaesthetic agent inside the paravertebral space. Moreover, the fact that EPS block is performed away from the neuraxis decreases patient exposure to the typical complications of neuraxial anaesthesia, such as spinal/epidural hematoma. This block has been used for both the thoracic and abdominal surgery with excellent results. Forero showed its effectiveness as a rescue analgesia technique in thoracotomy after epidural failure.[7] To our knowledge we are reporting the first case to show that ESP block is a valid rescue technique for abdominal surgery if executed bilaterally.

In our case the ESP block was able to provide adequate analgesia to the patients, but the duration of the analgesia was variable (between 6 and 18 h) making it acceptable as a rescue technique, but not as a first choice method in perioperative analgesia at least as a single-shot technique.

During the pain relief period the patients did not request any other analgesic, a finding which is in line with other literature works.[8,9] Such results could be helpful for programming a multimodal postoperative analgesia with the purpose of obtaining a fast mobilization of the patient and few side effects.

So far the prospective studies investigating the benefits of the ESP block in comparison with the epidural, spinal and other interfascial blocks are still missing and hopefully they will be performed in the next future. We believe that these case reports depict well the possible usage of the ESP block to provide analgesia in a multimodal plan, especially in the situations where epidural analgesia is not a viable option and endovenous analgesia is not able to guarantee pain relief.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other

clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest
There are no conflicts of interest.

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